

Draft- rev-4

Meeting Minutes

UNOLS Marcus Langseth Science Oversight Committee (MLSOC) Meeting
Sunday, December 14, 2008
San Francisco Marriott
San Francisco, California

A copy of these minutes can be downloaded as a pdf at <[200812mlsmi.pdf](#)>

Executive Summary:

The UNOLS *Marcus Langseth* Science Oversight Committee (MLSOC) met at the Marriott Hotel in San Francisco on Sunday December 14, the day before the start of the Fall American Geophysical Union meeting. This meeting was patterned after the successful Deep Submergence Science Committee, (DESSC) meeting by having a series of reports from this years users of the R/V *Marcus Langseth* give reports on what they were able to accomplish during their cruises, what worked well and where improvement could be made. This provided an opportunity for the operator and members of the community to learn about the strengths of the seismic facility and about the areas that might need attention before future cruises. Schedule operations for 2009, pre-cruise planning and long range planning for use of the *Langseth* were also discussed.

Action Items:

<i>Action Item</i>	<i>Assigned to</i>
Discuss with NSF (Julie Morris, Linda Goad and Jim Holik) the need for MLSOC input on scheduling and operational planning for <i>Langseth</i>	Steve Holbrook
Determine rotation of MLSOC members and work on identifying new members	S. Holbrook, MLSOC & UNOLS Office
Review Instrumentation and Equipment proposals from LDEO	MLSOC
Develop online tracking system for recommendations and action items	S. Holbrook and UNOLS Office

Appendices:

- I. [Agenda](#)
- II. [Attendees](#)
- III. [MLSOC Chair Report](#) - Steve Holbrook (PDF - 7.07 MB)
- IV. [2008 P.I. Cruise Report](#) - Sean Gulick (PDF 21.27 MB)

Meeting Summary Report

Meeting called to order at 1315 by Steve Holbrook, Chair. Steve reviewed the agenda (Appendix I) and made introductions of participants (appendix II).

Reports from 2008 cruises

Steve Holbrook gave an overview of the five science cruises during the year. All cruises were successful, but there are issues to be addressed. Steve reviewed plans for 2009 and what has been proposed for 2010 and 2012 (no proposals for 2011).

A review of capabilities that were tested during the 2008 cruises was given:

- 3D acquisition: 4 x 6 km streamers; dual gun sources

- 2D acquisition: single 8-km streamer
- Hi-res (up to 1000 Hz) acquisition
- OBS deployment/recovery
- XBT/XCTD/XCP deployment during seismic operation
- High-quality sound source - a huge improvement over what they had previously.
- Onshore-offshore source capability

Review of Holbrook cruises

- 2D MCS, OBS, onshore-offshore
- Ocean imaging (“seismic oceanography”)
- High data quality

Operational capabilities verified:

- 2D seismic
- OBS deployment/recovery
- XBT/XCTD/XCP deployment

New Capabilities tested:

- 8 km long streamer
- high-res data (1000 Hz)

Refer to the Chair’s report slides (Appendix III) for the following information provided in his report:

Showed tracks with onshore/offshore instrument deployment grid.

Showed some data filtered at a higher resolution, which is a capability that had not been previously tried.

Added a couple of days to the Pacific leg for German collaborators.

Showed data across the entire Costa Rica isthmus with very good data over 256km.

OBS data also very clean primarily due to the sound source.

Steve showed the oceanographic data that can be obtained with the sound source.

McGuire cruise – overall successful cruise.

- Airguns-only, 2 transects across TF’s
- Airguns functioned well; high-quality data
- 16 of 17 OBS recovered

Mutter Cruise - More information covered during cruise report later in the meeting.

- Successful 3D Acquisition: 2 sources, 4x6 km streamers
- Cruise interrupted by dual compressor failures -workaround accomplished in port
- 3,782 km of sail line data acquired
- 2 grids: ~25 x 29 km; ~25 x 4 km
- Very high data quality
- High praise for technicians and crew

Gulick Cruise – Covered during cruise report later in meeting.

Improvements since MGL 0804

- PAM spare onboard (but apparently failed during MGL0812)
- New shot-time logger acquired and tested (but problems during MGL0814)
- 2D towing arrangement refined & improved (float head of streamer)
- Additional gun tow ropes acquired for full suite of tow depths (3, 4.5, 6, and 9 m)
- Progress in SEG-D -> SEG-Y conversion (headers etc.)
- Shipboard website (“how-to”) improved
- Real-time QC shot monitor installed
- Gravimeter working
- Science staffing hires: Dave Martinson, Robert Steinhaus, Robbie Gunn.

List of areas of concern/risk

- Personnel

- IT support
- recruiting/retention
- Equipment
 - winches
 - magnetometer towing
 - streamer replacement
 - airgun spares
- Software/data flow
 - SEG-D->SEG-Y
 - Focus standalone license
 - Matlab
 - Seisnet USB key
- Habitability
 - "snake pit" cabin clusters
 - common areas
- Engine Room
 - compressors
 - training
 - maintenance
- MMO Issues
 - PAM
 - Turtles/ESA
 - clarity and consistency of IHA

Long Term Issues

- Upgrade path for streamer (already beyond rated age)
- Improvement of habitability
- Role of MLSOC in scheduling/solicitation
- How do we broaden funding base beyond NSF?
- "Lowering the bar" to access

Tasks for this meeting

- Updates on more recent cruises (Mutter/Carbotte; Gulick)
- Discussion of issues & concerns
- Subcommittee on Seismic Data Flow?
- Membership rotation:
 - Staggered rotations beginning Oct. 2009

John Mutter's presentation on 3D Cruise

It took 3 days to deploy all of the 3D gear. Gun quality: largely due to the fact that the "fire" command signal is digital all the way from the lab to the individual guns; on Ewing, it was analog down to the guns, so there were small delays that made it difficult to truly fire all guns in unison. They only had feathering of (typically) 5°; max was ~10° -- so, not a big problem. His summary feeling: data quality is better than he ever expected; the things that went wrong were things he never expected to go wrong (e.g., compressors)... but once they went to sea for the second time, everything went very well... "we can do 3D at or above industry standards." Suzanne: it is VERY helpful for PI's to merge data with navigation in Focus. This can be done using "mcs" on board (no need to bring your own workstation); Shipley: Is QC really being done to industry standards? -- e.g., analysis of gun performance at end of every line. Steinhaus: Yes, we are close to that. Shor: How big a deal were currents and shiphandling? Ship was able to keep lines to within a few meters, even in 35-40 knot winds... so, ship handling was great; not a problem. PIs should count on 3 days to deploy gear FIRST time (due to time needed to trim the streamers + deal with attachment points of all the gear); after that, other deployments should take about 1 day.

Gulick's presentation: MGL0814

Some things that appear to be standard on 3D cruises are not necessarily standard on 2D cruises -- e.g., real-time display of shot gathers, which were only done once it was asked for. 44 OBS deployments; 1250 km of MCS data.

Problems:

We actually ran out of spares by end of cruise; couldn't repair guns by end of cruise e.g., no RCM spares. Only had 3 gunners -- recommend sailing with 5 gunners. Need to work on clusters... still had problems with lower gun hitting the upper gun... requires a lot of maintenance. Compressor issues... were down twice (up to 75 minutes)... were apparently some spares issues there as well.

Streamer:

Excellent quality. Chinese finger takes some time -- first deployment took ~18 hrs; after that, later deployments took about 10-12 hrs. Excellent streamer handling & navigation. Balance is vital as in poor weather a light, solid streamer can easily end up on the surface. Sensitive to tension. Recommend: a white paper (or FAQ) be produced with specifics of operations including turning radius, deployment and recovery times, etc., so that future users can propose proper amount of contingency time. Average 10-14 hrs to deploy streamer; ~ 6 hrs to recover; turns: about 3°/minute. Sean is happy to share planning spreadsheets that he used.

Main Lab

Instruments were in good working order with past problems having been resolved. Technicians were really good. Recommend: make display of shot gathers a regular thing. Did data processing with laptops and Focus server (small Sun). Recommend: Gravity software for tie at dock and cookbooks ("How To") for how to access computer systems.

OBS

Dry lab is a great place for OBS setup; then deploy from wet lab (hangar door very nice to get out of weather). Ship handling good (and improved throughout cruise). Had problems with shot times -- wasn't logging correct trigger. Recommend: tugger for use through main A-frame on starboard side for OBS recoveries and produce shot times as regular product in a text file.

Operational Planning

Was not optimal. Were some last-minute requests from LDEO about line locations. MMO/IHA: need better communication. Recommend: Better pre-cruise planning so that last-minute changes to line locations are not requested. Need heat on ship (living quarters) for working in cold environments. Water - was a problem. A/C a real problem in main lab. Either too cold, or a foul smell. Better communication on ship re: when water would be unavailable. Rescue boat broke down... but is apparently fixed now.

Discussion

Problems w/ communication to beach not passed onto the science party. MMO's: Need improved communication prior to cruise and during cruise re: procedures and role of MMO's; chain of command and reporting (didn't always communicate MMO -> Tech-in-Charge; went through LGL, which was a short-circuit. Try to keep words "if practicable" in the IHA to give us some wiggle room.

Mutter: would be good to routinely have a chase boat for 3D work. Would be able to chase away shipping; be available for medical emergencies; bring supplies; and do forward observations of marine mammals. In the Gulf of Mexico: costs about \$5K/day plus fuel (near shore). A water taxi to pick up a sick crew member (500 miles out) cost \$65K. MLSOC: should we recommend full-time chase boat for 3D work?... should depend on particular area... must evaluate on a case-by-case basis.

Prince: might need to do a formal risk assessment and costing analysis

LDEO report

Introduction by Mike Purdy Director, LDEO who introduced Dave Goldberg, Director of the Borehole Research Group at LDEO, will take a leadership role in Marine Operations to help the organization.

Paul Ljunggren reported on operations. The ship's crew is coming together. They have a core of people in the deck department. They still have some openings in the engine department, but have been filling in with well qualified temporaries. The technical staff is much improved from the beginning of the year. They still have some holes there as well in IT, Acquisition and gunners.

They have spent a lot of time with pre-cruise planning through correspondence and conference calls. In the future, this process needs to have face-to-face pre-cruise planning meetings four to six months in advance. While at AGU they will be having meetings with all of the 2009 PIs. Discussion about the need to have more time for sorting out what the PIs need in the way of OBS, line layout, etc. Also PIs need to know how much contingency time to plan

for. Recommend: Need FAQ on LDEO web site with advice on how to plan contingency time

Planning a shipyard at the end of 2009, which Paul would like to have in the Gulf of Mexico, not the Pacific Northwest.

They conducted training for crew and techs while they were in Astoria. They sent people to schools and also have a good in house capability with Robert Steinhaus, Anthony Johnson and other LDEO former industry people to conduct on the job training. Training included Caterpillar diesel training (for aerial compressor) ... some technicians attended Syntrak training in Houston and Digishot training on board.

During the in port period they have been undergoing CG inspection and have a few 835's to clear. They are getting a new tank sounding system. The marine mammal booth was removed because the tower was not structurally sound enough to withstand 90 knot winds. Some sea valves are being replaced.

The Marine Mammal Observer, MMO point will be on the tower and they will need to provide some protection from fumes and wind.

They had to plate over the window that allowed visibility of the computer racks. They will eventually get and replace the plate with an A0 rated window, which will be allowed.

Discussion about the controls and functionality of the heating and air conditioning. This just needs some attention and probably some procedural changes. The ship can heat and cool lab and accommodation spaces.

Question about the reliability of the compressors. They have made some progress in maintenance and learning about how to maintain and operate them. In the case of the Mutter cruise, it took three days to figure out that they could not fix the compressors at sea. They had a lot of people working on the problem and were reluctant to pull the gear and go in without exhausting all options.

Asked about the fuel consumption and the probable duration of a 3D cruise. They have 250,000 gallons available; still not sure of actual consumption on 3D cruise. It is estimated at 5700 gallons per day and 4000 gallons per day on transits. Recommendation: make this information part of FAQs.

Steve Holbrook asked about any big issues on the ship that the community should know about:

They have finally gotten around putting some effort and funds into the main engines. They also have conducted some training for engineers. They have a major overhaul planned for the end of the year.

Water issues were related to fouling on the salt water side, which also impacted cooling systems. They have worked on the heat exchangers for the engines and compressors.

The Caterpillar engines are due for control upgrades. They have done this for one and will do it for the other on the transit. The engines are due for overhauls.

The Compressors are due for overhauls within a year.

They have made a lot of progress on understanding and maintaining the controls on the ship.

Spares in general are an issue. Need the funds for engineering spares and they have a back log of 100 to 150 back-orders. Also, they have been working on responding to emergencies and this takes resources away from planned acquisitions. Getting behind has added to the problems associated with inventory and ordering. They have hired a new person to help with requisitions.

Another issue is that documentation and procedures need to be improved now that they have the time to get these in order. This lack of documentation means that just a few people know exactly what to do or to order, but the second level people don't have the built in knowledge and need the documentation. Now that they are in more of a steady state, then they will have the time to put the processes and documents in order to help prevent crisis management.

They have a change management process in place now that says that you can't change a process or procedure without consensus and documenting it. They are also developing a job safety analysis.

Asked about the sailing delay. The key issues have been the replacement of the main sea valves, the installation of the new oily water separator and the new sounding system.

Question about personnel issues. Adding Dave Martinson is a big plus. With other positions, they get people trained and then they want to go to industry. It is also hard to find qualified people.

Al started a discussion about cruise planning. Inserting the LDEO knowledge and expertise has been coming too late to make changes to plans and procedures. This even impacts the number of days that are assigned to the cruise. Is there a structural way for the discussions of these key items much earlier in the process?

Discussed the need to provide detailed planning tools and spreadsheets to help validate the number of days needed for cruises, number of days and resources.

NSF report - Jim Holik

Skipped over the usual budget speculation.

Regarding *Langseth*, they still don't know what the real costs are yet. He needs the proposal for tech support by the beginning of the year. There are unexpected costs with this program and we need to do a better job of estimating costs early in the process.

The Langseth proposals have been reviewing well, but not getting funded because they cost too much. There needs to be a better process for finding ways to fund these. The issue is not lost on program managers and they want to find a better paradigm. Cruises were too long, geographically dispersed, and did not take into account transiting the ship.

Graham Kent mentioned his ideas about a milk run on behalf of the community. Being able to plan out ahead a few years.

Costs seem to be a big factor both in the science budget and in the operational budget.

Need a white paper on how to change the process. Need a project management type of system from proposal to post cruise data and reports. Use a formal operational planning and scheduling stage for highly rated proposals that are subject to a re-costing and prioritization

MLSOC recommendations, how to proceed.

Steve will send the spreadsheet to LDEO to mark items that are done and perhaps re-grouped. Then send to MLSOC for comments and prioritization.

Committee rotations:

- Peter Tyack is willing to rotate off but will continue as a resource. He has recommended Southall as a replacement. Ask Jon about having both at the next meeting.
- Peter Littlewood is rotating off. Jeff Rupert has recommended a couple of people that Steve will contact that would be industry acquisition person.
- Michael Enaschescu will be returning to industry, but is a science person. He is interested in continuing on the committee.
- Nancy Grindlay wants to rotate after one additional year.
- Graham Kent is willing stay three years.
- Mitch Lyle is willing to go for two more years, but wants to let others rotate on.
- Ray Schmidt is willing to continue.

- Steve would like to rotate off as the chair.

Paul Henkart, author of SIOSISE, has looked at the data flow on *Langseth*. He has recommended that a subcommittee on data flow issues as part of MLSOC. Committee will make a recommendation about a task force that would work with LDEO to work on these issues and whether or not funding is needed for a meeting (or more)